AD-A126 358 SURFACE DRIFTER STUDY - BERUFORT SER ALASKA(U) COAST GUARD RESEARCH AND DEVELOPMENT CENTER GROTON CT I N LISSAUER ET AL. JUL 82 CGR/DC-14/82 USCG-D-33-82 F/G 13/2 NL



MICROCOPY RESOLUTION TEST CHART NATIONAL BUREAU OF STANDARDS-1963-A

SURFACE DRIFTER STUDY - BEAUFORT SEA, ALASKA

Ivan M. Lissauer

U.S. Coast Guard Research and Development Center Avery Point Groton, Connecticut 06340

J.B. Matthews

Geophysical Institute University of Alaska 103 Koyukuk Ave. North Fairbanks, Alaska 99701



Final Report

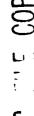
July 1982

Document is available to the U.S. Public through the National Technical Information Service Springfield, Virginia 22161

PREPARED FOR U. S. DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARD

> OFFICE OF RESEARCH AND DEVELOPMENT WASHINGTON D.C. 20593

> > 83 04 05



NOTICE

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of this report.

The contents of this report reflect the views of the Coast Guard Research and Development Center, which is responsible for the facts and accuracy of data presented. This report does not constitute a standard, specification, or regulation.

L.R. BRESLAU, Ph.D.

Hosd Breslan

Technical Director

U.S. Coast Guard Research and Development Center Avery Point, Groton, Connecticut 06340

Technical Report Documentation Page

		
1. Report No. CG_n_ 33-82	2. Gavernment Accession No.	3. Recipient's Catalog No.
CH-N- 22-25	AN-A126 350	
4. Title and Subtitle	1/10-7/26 330	5. Report Date
Construction Designation Charles	Dani Crist Can Alaska	July 1982
Surface Drifter Study -	Beautort Sea, Alaska	6. Performing Organization Code
		8. Performing Organization Report No.
7. Aumers) Ivan M. Lissaue	r J.B. Matthews	CGR&DC 14/82
9. Performing Organization Name and	UADA INGGENERYS	10. Work Unit No. (TRAIS)
USCG R&D Center Avery Point	Geophysical Institute University of Alaska	11. Contract or Grant No.
Groton, CT 06340	103 Kovukuk Ava	13 7 (2
2. Spansering Agency Name and Add	North Fairbanks, Alaska	99701 13. Type of Report and Period Covered
Department of Transport		Final Report
U.S. Coast Guard Office of Research and	Development	14. Spansoring Agency Code
Washington, D.C. 20593		
6 11070	02) The velesces were made	Sea near Prudhoe Bay, Alaska e under the shorefast ice just
Surface drifters were for two years (1979- prior to summer breal recoveries indicate circulation during t beached "onshore" of	82). The releases were made kup of the ice and in leads that the winds play a signified he open water season. A signified have release sites.	in the pack ice. The drifter ficant role in the surface gnificant number of drifters ferred beaching areas are ese results indicate the strong
Surface drifters were for two years (1979-prior to summer bread recoveries indicate circulation during the beached "onshore" of identified from the possibility that oil North Alaska Coast.	82). The releases were made kup of the ice and in leads that the winds play a signification water season. A signification release sites. Prediction recoveries. All the released offshore in the Box 18. Oismbur	in the pack ice. The drifter ficant role in the surface gnificant number of drifters ferred" beaching areas are ese results indicate the strong eaufort Sea will impact the
Surface drifters were for two years (1979-prior to summer breal recoveries indicate circulation during the beached "onshore" of identified from the possibility that oil North Alaska Coast.	Rate of the releases were made kup of the ice and in leads that the winds play a signification of their release sites. Predicted arithmeter recoveries. All the released offshore in the Branch of the	in the pack ice. The drifter ficant role in the surface gnificant number of drifters ferred" beaching areas are ese results indicate the strong eaufort Sea will impact the
Surface drifters were for two years (1979-prior to summer bread recoveries indicate circulation during the beached "onshore" of identified from the possibility that oil North Alaska Coast. 17. Key Words Surface circulation, description	Report the releases were made kup of the ice and in leads that the winds play a signification of their release sites. Predrifter recoveries. All the released offshore in the Bear of the released offshore in the Bear of the released of the	in the pack ice. The drifter ficant role in the surface gnificant number of drifters ferred" beaching areas are ese results indicate the strong eaufort Sea will impact the surface will impact the strong eaufort Sea will impact the strong the strong statement that is available to the U.S. public the National Technical Information, Springfield, Virginia, 22161

METRIC CONVERSION FACTORS

easures	Symbol		S :	S 3	: ⁵	Ē		in ²	, yd ²	Ē			70	Ð				fl 02	ပ	<u>a</u>	5	, 50	ະ ີ	λφχ			r.		
Metric M	To Find		inches	inches	vards	miles		square Inches	square yards	square miles	acres		ounces	spunod	short tons			fluid ounces	sdno	pints	quarts	gallons	cubic feet	cubic yards	,		Fahrenheit	lemperature	2 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
TOUS ILOU	Multiply By	H	0.04	9 .0	ω - ω -	9.0		0.16	1.2	4.0	2.5	ендит)	0.035	2.2	- :			0.03	0.125	2.1	1.06	0.26	35	1.3		3E (EXACT)	9/5 (then	add 32)	98.6
Approximate conversions from Metric Measures	When You Know	LENGTH	millimeters	centimeters	merers	kilometers	AREA	square centimeters	square meters	square kilometers	hectares(10,000 m²)	MASS (WEIGHT)	grams	kilograms	tonnes (1000 kg)		VOLUME	milliliters	liters	liters	liters	liters	cubic meters	cubic meters		TEMPERATURE (EXACT)	Celsius	temperature	-40°F 0 32 8
App	Symbol	: e		81 E	E 6	ri E Ž	9 L	cm ²		≱l km²	e ha	١	5 7 L	r kg	_	Oī	6	E	-	_ 4	_	_ ' 9	JE.	E S	*	·	င	S	L ma
		 			(910 (111	 		 [35 127		(1) (1) (1)	 	 		 									 11111 						
' '	8		7		1'		6	. 1	'	' 1	5	.1	'	' !	4	' i	` '	і' З	'	j'	'	۱ :	2	1	'	'1	1	ir	nches
salles	Symbol		cm	E	ε	Ę		ø,	a ₂			r e		57	ķ	-		Ē	Ē	Ē	_	-	-	- '	E.	, E		ပ	ables.
Mellic Mea	To Find		centimeters	centimeters	meters	kilometers		square centimeter	square meters	square meters	square kilometers	hectares	(grams	kilograms	tonnes	•	milliliters	milliliters	milliliters	lilers	liters	liters	liters	cubic meters	cubic meters	(XACT)	Celsius	temperature and more detailed t
sions to r	Multiply By	LENGTH	* 2.5	30	6.0	1.6	AREA	6.5	60:0	8.0	2.6	0 .4	MASS (WEIGHT)	28	0.45	6.0	VOLUME	5	15	30	0.24	0.47	0.95	3.8	0.03	97.0	TEMPERATURE (EXACT)	5/9 (after	32)
Approximate Conversions to metric measures	Symbol When You Know	i	Inches	leet	yards	miles	I	square inches	square feet	square yards	square miles	acres		ounces	spunod	short tons (2000 lb)		teaspoons	tablespoons	fluid ounces	cups	pints	quarts	gallons	cubic feet	cubic yards	TEME	Fahrenheit	(F) In = 2.54 (exactly). For other exact conversions and more detailed tables.
2	- TO			=	þÁ	Ē		in ²	115	yd ²	mi ²			20	٩			tsp	Ibsp	II oz	ပ	īď	1	gal	£	yd ³		٩.	*- in ii 2.

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
2.0	OBJECTIVE	1
3.0	PROCEDURE	2
4.0	RESULTS	3
5.0	CONCLUSIONS	7
6.0	SUGGESTIONS FOR FURTHER STUDIES	9
REFE	ERENCES	10
APPE	NDIX A - 1979 DRIFTER DATA	A-1
APPE	NDIX B - 1980 DRIFTER DATA	B-1

Accession For	/
NTIS GRA&I	X
DTIC TAB	
Unannounced	
Justification	· · · · · · · · · · · · · · · · · · ·
Distribution/ Availer 1117 Cod	
Ave.1 del/or Dist Special	,
A	



LIST OF ILLUSTRATIONS

Figure		Page
1	Drifter release locations - Beaufort Sea, Alaska, 1979	4
2	Drifter release locations - Beaufort Sea, Alaska, 1980	5
3	Histogram of Drifter Recoveries	8

LIST OF TABLES

Table		Page
1	Drifter Release and Recovery Data	3
2	Summary of Drifter Movements	6
3	Maximum Eastward and Westward Drifter Recoveries	6

1.0 INTRODUCTION

A major area for oil exploration in the United States is the Beaufort Sea along the North Slope of Alaska. The estimated reserves on the North Slope and under the continental shelves of Alaska are potentially the largest untapped petroleum sources in North America. Various estimates of recoverable reserves (including the MacKenzie Bay area and the Canadian Archipelago) range up to 190 billion barrels of oil and 31 trillion cubic meters of gas.

Arctic oil spills could originate from any of several possible sources which have been identified as major threats. The most serious threat arises from the possibility of a well blowout. While it is difficult to estimate the magnitude of such a spill, a spill of hundreds of thousands of barrels is not unreasonable. Another possible source of an oil spill would be from tankers transporting crude oil from the North Slope to refineries in other states. Such an alternative appears to be both economically and technically feasible. With increased discoveries and production of oil expected to surpass the capacity of the pipeline from Prudhoe Bay to Valdez, the marine alternative to oil transport will take on added significance in the mid 1980's. A third source for an oil spill arises from the tankers which will be used to supply the North Slope area with refined petroleum products. The track these ships would take carries them through sometimes treacherous and ice-infested waters; the possibility of an accident with a resulting oil spill must be seriously considered.

Response to an oil spill in the Arctic is likely to be much slower than that of a similar situation in the temperate region, because of the remoteness of the area and its severe climate. In addition, it is possible that oil will be spilled under ice, or be covered with snow if it is spilled on the ice, making it difficult to locate the boundaries of the spill. In the face of these unique problems presented by an oil spill in the Arctic environment, accurate prediction of the extent and subsequent movement of an oil spill is vital to any cleanup effort.

The Coast Guard has sponsored research and field tests in attempting to define mechanisms of oil spreading in the Arctic environment. The WEBSEC (Western Beaufort Sea Ecological Cruise) studies of 1970-1973 have defined some features of the general oceanography of the North Slope continental shelf. Theoretical models, as yet untested, have been developed which address spreading on and under a solid ice cover and in open water (Matthews, 1981b, Free, et al. 1981). In addition, the Alaskan Outer Continental Shelf (OCS) environmental studies program of the Bureau of Land Management (BLM) has and is acquiring new information on the coastal waters of Alaska and the possible dispersion of oil in these environments. However, there are large gaps in our understanding of the Arctic environment, particularly in the area of surface currents and ice drift data.

2.0 OBJECTIVE

The United States Coast Guard's Office of Research and Development gave its Research and Development Center the specific responsibility to study oil/ice interaction phenomena and to provide guidance in defining appropriate spill response methods. An objective of the oil spill response program is the development of methods for predicting the movement of oil spills in ice-infested areas. The methods to be developed must account for the dynamics

of pack ice, and shear zones associated with the pack ice. Investigations were required to determine the factors that cause oil spill transport and the rates at which the spill changes physically and chemically with time.

Therefore, the Coast Guard R&D Center commenced a research project to develop methods for predicting the movement of oil spills in Arctic waters. One investigation undertaken was a drifter study to determine the net surface circulation in the nearshore region of the Southern Beaufort Sea between Point Barrow and the Canadian border.

3.0 PROCEDURE

Surface drifters have been used successfully in temperate waters to acquire useful data on surface drift (Paskausky and Murphy, 1976; Conomos, 1974). Similar studies in the Beaufort Sea were less successful because of low rates of return. Hufford, et al. (1976) documents a U.S. Geological Survey experiment where the rate of return for 4200 surface drifters was only 1.8%. Later drifter studies showed greater percentages of return because of expanded activities on the North Slope, however, they were still low in comparison to similar studies in temperate areas. Drifters for this study were released in 1979 and 1980. During 18-22 May 1979 1500 drifters were released under the ice, and during 28-31 March 1980 2000 drifters were released under the ice. The field party cut holes in the ice and forced the drifters under the ice. The release sites for 1979 and 1980 are shown in Figures 1 and 2. BP indicates the line of stations from Beechey Point seaward, SS is the line of stations in the Stefansson Sound area, north of Tigvariak Island. In addition to the under-ice releases a Coast Guard field party released drifters in open water leads during 1979 and 1980. Fivehundred-fifty drifters were released on 12 July 1979 from five stations north of the barrier islands. These are shown as CG 1-5 on Figure 1. On 7 July 1980 500 drifters were released in groups of 100 on a line running north of Reindeer Island (CG 1-5 on Figure 2). The first group of 100 drifters was released 5 miles north of the island and subsequent groups released at intervals of 5 miles from that point.

In this study, Woodhead-type surface drifters were used to determine the surface drift. They consist of a yellow plastic disc (18 cm diameter) with a 55 cm long stem attached through the center of the disc. Both the disc and the stem have slight positive buoyancy. The stem acts as a rudder and causes the drifter to float mostly submerged, rather than on the surface where the drifter could become airborne or be wind blown. The disc is stamped with a serial number and a legend with a promise of a \$1.00 reward upon the return of information regarding the time and location of discovery.

4.0 RESULTS

Drifter recoveries began in the summer after the ice broke up and began moving. During breakup, the drifters released under the ice entered the surface flow field and moved in the mixed ice and open water environment. This part of the experiment was intended to simulate the movement of oil which had been trapped on or in ice. In the Coast Guard release the drifters moved in an open water environment. Table 1 summarizes the drifter release and recovery data.

TABLE 1
DRIFTER RELEASE AND RECOVERY DATA

Date Released	Number Released	Number Recovered	Percent Recovered
18-22 May 1979 (un	der ice) 1500	168	11.20
28-31 March 1980 (under ice) 2000	239	11.95
12 July 1979 (in 1	eads) 550	9	1.64
7 July 1980 (in le	eads) 500	38	7.60
TOTAL ALL RELEAS	SES 4550	454	9.98

Directional movement and drifter speed are listed in Appendices A and B. Table 2 is an analysis and summary of the drifter data contained in the appendices. Onshore for Table 2 has been arbitrarily set as any shore recovery 10 kilometers either side of the first Beechey Point (BP) and Stefansson Sound (SS) release stations (Figure 1). This computation was not done for the offshore CG stations.

The results of the drifter movements suggest that the drifters respond primarily to wind-driven surface water movement during open water conditions. The combined drifter returns show 334 (74%) were found to the west of their release points indicating a predominant easterly wind direction. This dominance of easterly winds has been well documented by Hufford, et al., 1976. Even though easterly winds dominate, causing a majority of the drifters to move west, there is still some significant movement to the east of release stations. Table 3 shows the maximum eastward and westward movement of drifters from each of the four transects of 1979 and 1980 as well as the CG release sites for 1979 and 1980. Even individual release sites can exhibit extreme dispersion in the movement of drifters released at these points. For example, from the released drifters at station BP-8 (1980), one drifter was found 122 kilometers west of the release site, and another was found 129 kilometers east of the release site.

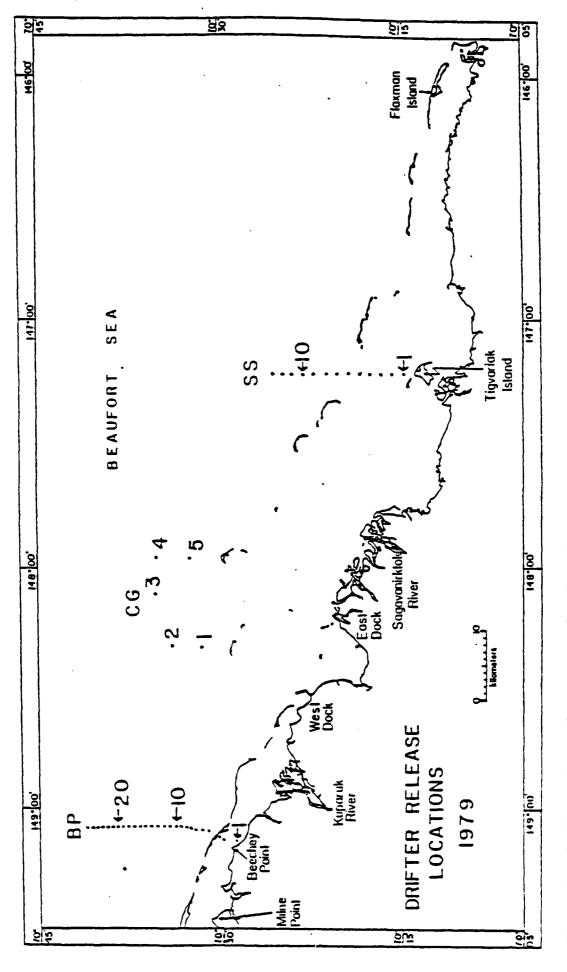


Figure 1. Drifter release locations - Beaufort Sea, Alaska, 1979

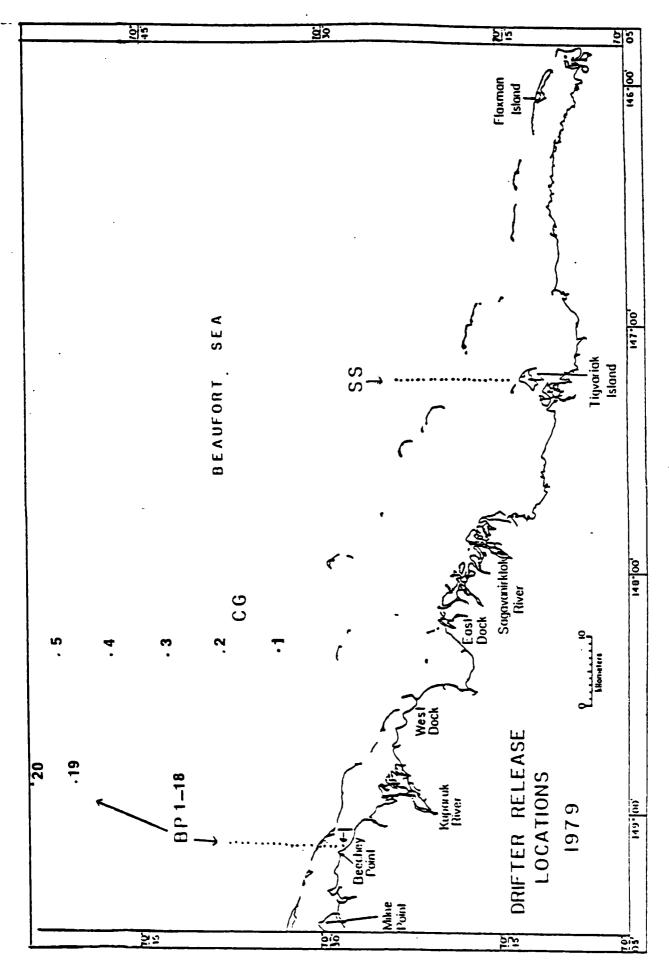


Figure 2. Drifter release locations - Beaufort Sea, Alaska, 1980

TABLE 2
SUMMARY OF DRIFTER MOVEMENTS

Year	Stations	Direction of Movement	Number	Percent
1979	BP 1-26	East along coast On shore	25 2 8	(76%) (-) (24%)
	SS 1-13	West along coast East along coast On shore	29 13	(24%) (-)
	CG 1-5	West along coast East along coast West along coast	91 3 6	(76%) (33%) (67%)
1979 (totals)	East along coast Onshore West along coast	40 15 122	(25%) (-) (75%)
1980	BP 1-20	East along coast Onshore West along coast	14 41 83	(14%) (-) (86%)
	SS 1-20	East along coast Onshore	6 4 91	(06%) (-)
	CG 1-5	West along coast East along coast West along coast	2 36	(94%) (05%) (95%)
1980 (totals)	East along coast Onshore West along coast	22 45 210	(09%) (-) (91%)
1979-8 (combi	ned totals)	Easterly Westerly	120 334	(26%) (74%)

TABLE 3
MAXIMUM EASTWARD AND WESTWARD DRIFTER RECOVERIES

Year	Stations	Maximum Eastward (KM)	Maximum Westward (KM)
1979	BP 1-25	118.5	253
1979	SS 1-13	48	96
1979	CG 1-5	82	30 -
1980	BP 1-20	153	251
1980	SS 1-20	62	337
1980	CG 1-5	207	178.5

All of the release transects show a predominance of drifters moving to the west except for BP 1-26 (1979). The results from this transect (Table 2) show 76% of the drifters found were east of the release sites. Review of National Weather Service wind data for Barter Island and Point Barrow indicate some short episodes of westerly winds which would have moved the drifters to the east. These drifters generally did not move far to the east (Figure 3). However, should a longer period of westerly wind occur, larger drift to the east would ensue.

Another interesting facet of the drifter data returns is the apparent preferred beaching areas of drifters. Figure 3 depicts the number of drifter recoveries east and west of their release points for 10 kilometer intervals. There is a peak of recoveries both east and west of release sites for the distances 0-10 and 10-20 km from the release sites. Matthews (1981a) speculates that this onshore movement of drifters may be caused by under-ice currents when the drifters were first released. Further verification of this assumption is necessary and highlights the need for measurements of under-ice currents. Two other areas where the frequency of recoveries peaks are 40-50 and 120-130 kilometers west of the release sites. The peak at 40-50 kilometers is caused mainly by releases from SS stations. These drifters moved west and many of them beached in the Prudhoe Bay area. The peak at 120-130 kilometers is caused mainly by drifters from BP station beaching at Harrison Bay. This type of information is extremely important for the development of oil spill contingency plans for the North Slope area.

5.0 CONCLUSIONS

- l. The results of two years of drifter releases indicate that they respond primarily to wind-driven surface water movement during open water conditions. The data suggest the dominance of easterly winds during open water conditions caused 334 (74%) of drifter recoveries to be found west of their release sites.
- 2. Although easterly winds cause movement to be from east to west there can be significant drifter movement in the opposite direction.
- 3. Dispersion of the drifters is significant as shown in Table 3. Dispersion from a single line of drifter releases (BPI-25, 1979) was 371.5 kilometers.
- 4. Dispersion from a single station (point source) can be significant. From the fifty drifter releases at site BP-8 (1980) one drifter was found 122 kilometers west of the release point, and another was found 129 kilometers east of the release site. Thus the total separative distance for two drifters released at the same spot at the same time was 251 kilometers.
- 5. For those drifters that were found, a significant number beached "onshore" of their release sites.

6. There are certain coastal areas where "preferred" beaching of drifters occurs. This preferred beaching appears to be a function of release site and meteorological conditions. This type of information and future information from subsequent drifter releases in other areas can therefore provide extremely important data for oil spill contingency planning.

6.0 SUGGESTIONS FOR FURTHER STUDIES

Results of the experiment indicate that there is a strong possibility that oil released offshore in the Beaufort Sea will impact the North Alaskan Coast. Also indications are that oil from a single source may be dispersed over great distances (up to 250 km) along the Coast. However, little is known about the transport trajectories, or the circulation dynamics governing these trajectories. Lagrangian drifter studies (satellite tracked) and current surveys (current meter deployments) in the nearshore area could contribute toward providing additional information which would be useful in understanding these circulation patterns.

REFERENCES

Conomos, T.J., 1975. Movement of spilled oil as predicted by estuarine nontidal drift. Limnology and Oceanography, 20(2), 159-173.

Free, A.P., J.C. Cox, L.A. Schultz, 1981. Laboratory Studies of Oil Spill Behavior in Broken Ice Fields. United States Coast Guard Research and Development Report #CGR&DC 1/82. Available from National Technical Information Service, Springfield, Virginia. 63p.

Hufford, G.L., I.M. Lissauer and J.P. Welsh, 1976. Movement of spilled oil over the Beaufort Sea Shelf - A forecast. United States Coast Guard Research and Development Report #CG-D-101-76. Available from National Technical Information Service, Springfield, Virginia. #A033580, 87p.

Matthews, J.B., 1981a. Observations of Surface and Bottom Currents in the Beaufort Sea Near Prudhoe Bay, Alaska. <u>Journal of Geophysical Research</u>, Vol, 86, No. C7, 6653-6660.

Matthews, J.B., 1981b. Observations of Under-Ice Circulation in a Shallow Lagoon in the Alaskan Beaufort Sea. Ocean Management., 6, 223-234.

Paskausky, D.F. and D.L. Murphy, 1976. Seasonal variation of residual drift in Long Island Sound. <u>Estuarine and Coastal Marine Science</u>, 4, 513-522.

APPENDIX A DRIFTER SPEED COMPARISON AND DATA

DRIFTER SPLED COMPANISOR AND DATA - 1979

fujoj Bajar = All	HP + releases due north of Beechey	Rechey		\$\$ * \$te	SS - Stefansson Sound - releases due north of Tigvariak Island	releases due Island		CG " released by	CG - released by the Coast Guard
MIFAST	HOLIVOI	MITASE	RECOVERY	ADICIT	DISTANCE (KILONETLES)	RAIF (KM/DAY)	RAIE (CH/SEC)	DINECTION	RI COVI RY I OCATION
	149°B.3° 70° 29.5°	May 18	9 yluk .	53	54	κί	بع	East	ARCO WEST INCK
		May 18	Auņ. 27	102	24	? :	<i>ج</i>	East	West dock - west side, halfway he- tween dockhead 12 & 3
		Play 18	July 28	12	ب	τ,	7.	Nest	In a bay 1/2 between Orill Point & Kavearak Point
		May 18	July 18	62	24.	₹.	ર ું	East	ARCO Causeway, West side 300 m shoreward of dockhead #2
BP 2	149° 8.1° 70° 30.0°	Hay 18	July 25	69	18.5	.i.	C.	East	Stump T. Morth side East end
		May 18	July 14	8 9	2	₹.	.2	East	Southeast Long Island Nearshore Beach
		Hay 18	July 14	5 A	=	2.	? :	[ast	Southeast Long Island Nearshore Beach
		May 18	July 14	20	Ξ	.2	2.	Ĺast	Southeast Long Island Nearshore Beach
L 1	149"7.8" 70" 30.3"	May 18	July 21	65	22	. :	m.	East	Stump I. North side West end
.	149° 5. 6' 70° 31. 2'	May 18	July 20	59	52	₹.	ત ં	East	ARCO Causeway, East side, 300 m toward dockhead 43 from dockhead 42

DRIFTLE SPILD CONTARISON AND DATA - 1979

RIITASF	IN 1 LAST.	INTLASE	RECOVERY DATE	DAYS	UISTANCE (KILONLIERS)	RAIE (KII/IMY)	RATE (LH/SEC)	DIRECTION	RECOVERY LIXATION
- -	149° 5.6° 70° 31.2°	May 10	July 21	65	- 12	.	£.	East	Stump 1. Horth side near middle of Island
		Hay 18	July 21	59	13.5	.2	?	West	Hear old wood house on Allne Point
BP 6	149" 5.7"	Hay 19	Aug. 22	96	25	£.	£.	East	East side Prudhoe Causeway
R 7	149" 4.8° 70" 32.6°	May 19	Aug. 6	80	13.5	۶.	.	West	Hilm Point Beach (off int area)
		Hay 19	Aug. 7	Ξ	. 32:	₹.	رن م	Fast	Hiskuk I. (high ground) furtherest north lu chain
e Ja	149° 5.3° 70° 33.0°	Hay 19	July 28	<u>-</u>	2		- :	West	In a bay midway between Orill Point & Kavearak Point
6	149" 4.8' 70" 33.4'	May 19	July 21	64	7	?	۶.	West	Hear old wood house Hilne Point
IIF 10	3.5 miles of Cottle Island	May 21	July 21	29	12	~ :	£.	Last	Stump 1. North side Hend
		May 21	γού. 6	6	15	?:	?:	West	Hilne Point Neach (off hut area)
		May 21	July 27	60	69	1.3	1.5	East	Bullen Fuint
		May 21	July 25	99	19	£.	m.	East	torth side of Egg 1.
H H	4.0 miles north of Cottle I.	Hay 21	July 25	99	*	2 .	? :	West	.5 km east along shoreline from Kavearak Point

DRIFTER SPEED COMPARISON AND DATA - 1979

RILLIAST.	RELEASE LOCALION	RELEASE	RECOVERY DATE	DAYS	DISTANCE (KILONCTERS)	RATE (KII/DAY)	RATE (CII/SEC)	DIRECTION	HI COVERY LOCATION
BF 12	4.5 miles north of Cottle I.	Hay 21	July 23	2	10.5	? :	2	West	Mear the point on east side of Beechey Point
EF 13	5.0 miles north of Coline 1.	May 21	Aug. 14	86	34	₹.	rė	East	North side Retniker I.
		Nay 21	Aug. 4	91	32	۳.	ιċ	East	In water 100° offshure 70° 27.13 140° 14° 58
		May 21	Aug. 22	94		r:	£:	East	Mest side Prudhoe Causeway 70°25'i3 148°30'30
F 15	6.0 miles north of Cottle I.	Nay 21	Aug. 5	"	119	1.5	1.7	West	600 yds west of Husky Oll Camp, Haval Petro- Jeum Reserve, Louely
Nr 10	7.5 mlles north of Cottle I.	May 22	Aug. 14	92		₹.	rė,	East	North side Reindeer I.
		Hay 22	Sept. 25	102	253	₹.	rė.	West	On beach in Pet 4. Cape Shurson, old DEW Tine site
Nr 21	9.0 miles north of Cottle 1.	May 22	Aug. 4	75	5. 19	æ .	e;	East	70°24.2° 147°31.4°
RF 22	9.5 miles north of Cottle I.	May 22	Aug. 27	86	37.5	₹.	κί	۳۶ ۵۶ ۲	On shore, South of west dock

DRIFTLR SPLED CHWARTSON AND DATA - 1979

RI I I ASF	RELEASE LOCALTOR	RILEASE	RI COVI RY DATE	DAYS	DISTANCE (KILONGTENS)	RATE (KH/UAY)	RATE (CM/SEG)	DIRECTION	RICOVIRY LOCATION
IP 23	10.0 miles north of cottle F.	May 22	Sept. 5	107	Oν	₹.	κi	East	East shore, Prudhoe Bay
BP 24	10.5 miles north of Cottle 1.	May 22	Sept. 1	103	118.5	1.2	7 .7	East	On the inward side of Flaxman I.
Nº 25	11.0 miles north of Cottle 1.	May 22	Aug. 22	93		rė	.	East	East side Prudhoe Cause- way
BP 26	11.5 miles north side Cottle I.	May 22	Aug. 14	85	34.5	₹.	κί	East	Horth side Reindeer Island
1 55	I mile north Tigvariak I.	May 24	July 17	55	12	₹.	rė	West	Hear mouth of Sagavanirktok River
		Hay 24	Aug. 14	83	47.5	9.	1.	West	Horth side Reindoer Island
		May 24	July 26	V 9	۷۷	.,	æ	West	South of old east. dock on shore
		May 24	Aug. 27	96	20	ĸ,	Ŀ,	West	On share, south of wast dack
		Hay 24	Sept. 11	Ξ	15	- .	-	East	On the east side of Bullen Point, 146-50' 70-10.8'
		May 24	July 24	62	10	.2	2	West	Mainland beach of east Foggy Island Bay

DRIFTER SPEED CONTARTSON AND DATA - 1979

RECOVERY DAYS DISTANCE RATE OATE ADMIFT (KILOPLETES) (KH/DAY) July 24 62 10 .2
July 26 64 6.5 .1
Aug. 7 76 15 .2
.huly 11 49 50 1.0
July 18 56 3.5
July 20 58 6 .
July 20 58 6
July 21 59 5A
July 21 59 55
July 18 56 49
Aug. 27 96 47.5

DRIFTER SPEED COMPAUSON AND DATA - 1979

RELEASE	ROTASE LOCATION	RILFASE	RECOVERY	BAYS	DISTANCE (KILOMITERS)	RATE (KM/DAY)	RATE (CH/SEC)	D1RC110H	RI COVI RY 1 OCATION
SS 2	2 miles north hay 24 of Hyarlak Island	lay 24	July 26	9	20	æ,	6.	West	South of west dock
		May 24	July 24	29	=	.2	?	West	A, inland beach of cast foggy 1. Bay
		May 24	July 26	64	6.5	- .	- :	East	Southeast Beach Tigvariak Island
		Nay 24	July 26	. 64	6.5	- :	₹.	East	Southeast Beach Tigvariak Island
		Hay 24	July 24	29	. 03	€.	6 .	West	Mouth of Putuligayak River
SS J	3 miles north Hay 24 of Higvariak Island	Hay 24	July 21	59	55	6.	o	West	Stump 1. north side, near middle of Island
		May 24	July 23	19	73.5	1.2	<u>, , , , , , , , , , , , , , , , , , , </u>	West	Hear the point on east side of Reechey Pt.
		Hay 24	July 23	19	73.5	1.2	<u></u>	West	Hear the point on east side of Reechey Pt.
		May 24	Aug. 6	75	49	~ :	e .	West	1 ml. west of east duck on beach
		Hay 24	July 24	29	21	~:	2.	East	Mainland beach of east foggy is. Bay
		May 24	Aug. 31	100	49	ŗċ	9.	West	East shore Pruchoe Bay
		May 24	Sept. 13	113	47	₹.	κί	West	Share south of west dock

DRIFT TER SPLED CONFARTSON AND DATA - 1979

SS A

RECOVERY LOCALION	Along east shore Tigvariak island	Along east shore Tigvariak island	Along east shore Tigvariak Island	West side east dock	On old east dock near bay end	North of old east dock on shore	Matuland beach of east Foggy Is. Bay	Mainland east of Shaviovik R. Helta	tast of Bullen Point	East of Bullen Point	West of Staines River
DIRECTION	East	East	East	West	West	West	West	West	East	East	East
RATE (CPYSEC)	.2	۶.	.2	9 .	æ.	e .	.2	? :	£.	E.	€.
RATE (KIYUAY)	~ ;	? :	? :	s.	۲.	r :	?	? :	E.	c.	1.
DISTANCE (KILOPETERS)	11.5	11.5	11.5	45.5	45.	45	11	16.5	19	19	48
DAYS	28	50	50	96	65	99	83	8	99	9/	73
RF COVERY DATE	July 20	July 20	July 20	Aug. 27	July 27	July 27	Aug. 14	Aug. 12	July 28	Aug. 7	Aug. 4
RITEASE	May 24	Nay 24	May 24	Hay 24	May 24	Nay 24	May 24	Hay 24	May 24	Hay 24	May 24
RELEASE 10:ATION	6 miles north May 24 of Figvariak Istand										

DRIFTER SPLED COMPARISON AND DATA - 1979

RILIASE	HITASF OKALION	RELEASE	RECOVERY Date	DAYS	DISTANCE (KILONKTERS)	RATE (KTI/IAY)	RAIE (CH/SIC)	DIRCTION	RECOVERY LOCATION
\$ 55	t *	May 24	July 25	63	20	0 :	6 .	West	Stimp Is, north side vest end
	Die K	Hay 24	July 20	58	47.5	· e ,	e.	West	ARCO Causeway, east side, 1/2 way between dockhead 13 and dock- head 12
		May 24	Aug. 22	16	48.5	ĸ,	Ŀ	Hest	East side Prudhoe Gauseway
		May 24	July 25	63	46.	۲.	æ	West	On share just south of west dock
9 SS	5 wiles north to f Tigvariak	May 24	July 18	26	æ	7	- .	West	Along north slore Tigvariak Island
	1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S	May 24	July 21	59	49	æ	6.	West	Stump 1s. north side west end
		May 24	July 21	59	49		6.	West	Stump is, north side west end
		May 24	July 21	59	20	æ,	e .	West	ARCO Causeway, east stde, 50 m toward dockhead (3) from dock-head (2)
		Nay 24	Aug. 11	80	Ś11.5	.	E.	Hest	Routh of Sagavanirktok River
		Nay 24	Aug. 27	96	46.5	٦ċ	9.	West	West side east dock

DRIFTER SPEED COMPARISON AND DATA - 1979

RI COVERY LOCALTOR	On shore, south of west dock	Beach east of Hilne Ft., 2 km east of HARL cabins	East shore Prudhie Day	Cast shore Prudhoe Bay	Shore up to 1 m left of west dock	Stump Is, north side west end	148°30'30" 70°23'18"	1/2 m west of east dock, Prudhon Beach	West shore of Prudhoe Bay above Putullgayuk River	Mest shore of Prudhoe Bay above Putuligayuk River
DIRECTION	West	Vest	Mest	West	West	West	West	West	West	West
RATE (CH/SEC)	æ,	1.7	.	9.	1.5	6.	۲.	.,	6.	6.
RATE (KY/DAY)	εć.	5	z.	κί	1.3	æ	بو	æ.	8 ,	æ,
DISTANCE (KILON IENS)	50	18	49	. 64	25	48.5	48.	4,	49	49
DAYS	96	56	100	100	39	59	80	19	63	63
NF COVE RY DATE	Лия. 27	Aug. 18	Aug. 31	Aug. 31	July 1	July 21	Aug. 11	Aug. 10	July 25	July 25
MILTASE	Nay 24	Nay 24	Nay 24	Aay 24	May 24	May 24	May 24	Hay 24	May 24	Nay 24
IOCALIUM IOCALIUM	5 miles north flay 24 of Ilqvariak Island					7 miles north May 24 of Ilqvarlak Island				
HILTAST	SS 6					SS 1				

DRIFTER SPEED CONVARISON AND DATA - 1979

RITASF	RELEASE	RILFASE	RECOVERY	DAYS	DISTANCE (KILONETERS)	RATE (KIVIAY)	RATE (CM/SEC)	DIRCCTION	RECOVERY
2S J	7 miles north of Hgyariak Island	May 24	July 24	29	17.5	f:	£.	Vest	Mainland Beach of cast foggy is. Bay
		May 24	Sept. 5	105	43	₹.	Ř.	West	East shore Prudhoe Bay
		May 24	Aun. 31	100	43	₹.	κί	West	East, shore Prudhoe Day
·		May 24	Sept. 1	101	13.5	7.	- .	West	South central point of Hyvariak is. 70-12'48" 147-14'26"
		May 24	July 1	39	. 03	L.3	5:1	West	Shore up to Im left of west dock
		Hay 24	July 1	39	20	F.3	1.5	West	Shure up to Im left of west dock
SS R	B miles north May 24 of Tigvariak Island	May 24	July 20	20	15	:	£;	East	Along east, shore Tigvariak is.
		Nay 24	July 20	58	15	. :	Ŀ.	East	Alony east shore Hgvarlak Is.
		May 24	July 18	99	15	€;	£.	East	Along east shore Tigvariak is.
		May 24	July 18	26	13.5	. 2.	۶.	East	Along north shore Ilgvarlak 1s.
		May 24	July 18	56	13.5	2:	.2	East	Along north shore Ilgvariak is.

DRIFTER SPECID COMPARISON AND DATA - 1979

RELLASE	RFLEASE DATE	RECOVERY DATE	PAYS	DISTANCE (KILONETERS)	RAIE (KII/DAY)	RATE (CH/SEC)	DIRECTION	RECOVERY
8 miles north May 24 of Itavariak Island	Hay 24	July 20	88	4,	æ .	6.	Hest	ARCO Causemay, east side 300 m loward dockhead 13 from dock- head 12
	May 24	July 21	. 59	49	æ.	6 .	Hest	Stump Is, north side, west end
	May 24	Aug. 27	96	46.5	κį	ب e	West	Hest side, east dock
	May 24	July 25	63		æ	6,	West	West shure of Prudhoe Bay above Putuligayuk River
	May 24	Sept. 4	104	Ξ	T.	- .	West	Morth shore Narwhal Is.
	May 24	Sept. A	104	=	τ.	-	West	North Shore Narwhal 1s.
	Nay 24	Sept. 4	104	Ξ	- .	- .	Hest	Horth shore Harwhal Is.
	Nay 24	July 24	62	18.5		£.	West	Mainland Beach of east Foggy Is. Bay
	flay 24	July 24	62	10.5	£.	E.	Hest	Hainland Beach of east foggy 1s. Bay
	Hay 24	July 24	29	18.5	£.	£;	West	Mainland Deach of east Foggy Is. Day
	Hay 24	July 24	29	18.5	£.	£.	West	Hainland Beach of east Loqqy Is. Bay
	May 2.4	July 24	62	18.5	. :	£.	Hest	Halmland Beach of east longy Is. Bay
	Hay 24	Aug. 14	63	18.5	۶.	ج.	West	Mainland Reach of east foggy Is. Ray

DRIFTER SPEED COMPARISON AND DATA - 1979

	RI COVERY LOCATION	Stump Is. north side, west end	Stump is, north side west end	Stroop Is. north side, west end	Stump Is, north side, west end	ARCO Causeway, rost side 1/2 way between dockhead 13 & dockhead 12	Stump Is. north side, west end	Stump 1s. north side, east end	f ml, west of east dock of Prudhoe Bay on beach	Hest stile Pruthoe Cause- way	West shore of Prudhoe Bay ahove Putuligayuk River
•		Stump s Ide.	Stump Is. West end	Stimp 1s. West end	Stimp West o	ARCO C s tdc 1 dockhr #2	Stump west o	Stump 1s. east end	f mf. ves dock of P on beach	Hest s	West s above
	DIRECTION	West	Wrst	West	West .	West	West	Hest	West	West	West
:	(CIV/SEC)	6.	6.	6.	6.	ei	6.	6.	t :	6.	6.
	RATE (KH/IDAY)	∈	e.	æ	E.	æ	æ.	æ.	بع	E	æ
	DISTANCE (KILOWETERS)	20	20	. 09	50	46.5	51.5	51.5	47	48.5	49.5
	DAYS		59	63	59	58	63	63	75	09	65
	RECOVERY	July 21	July 21	July 25	July 21	July 20	July 25	July 25	Aug. 6	Aug. 22	July 25
	RELEASE	M1y 24	Hay 24	Hay 24	May 24	May 24	May 24	Hay 24	Hay 24	May 24	May 24
	RI 1 1 AST 1 OF AT TON	9 wiles north Hay 24 or Hiyariak 1- Land									
:											

DRIFTER SPEED CORPARISON AND DATA - 1979

RILLASE	RULLASE	RILEASE	RI COVERY DATE	ADILIFT	DISTANCE (KILONUTENS)	RATE (KM/DAY)	(CM/SEC)	DIRCCTION	RI COVE RY LOCALION
P SS	9 miles north May 24 of Ilgvarfak Isband	May 24	Ана. 8	<i>t</i> :	10.5	- ·	- .	East	East end Pole Is offsbore beach
		Hay 24	Aug. 8	11	10	-	-	East	Pole Island
		Hay 24	Aug. 8	11	10	-	- :	East	Pote Island
		May 24	Aug. B	"	10	- .	-:	East	Pole Island
		May 24	July 21	. 59	46.5	æ.	6.	West	ARCO Causeway, east side
		May 24	July 24	29	. 49	æ,	6.	West	Houth of Putuligayuk River
		Nay 24	Ang. 31	100	46	κĵ	بو	West	East shore Prudhoe Bay
		May 24	July 1	39	20	. 1.3	1.5	West	Shore up to 1 m left of west dock
		May 24	July 1	39	. 20	- .3	7.5 5.5	West	Shore up to 1 m left of west dock
SS 10	10 miles north of Tiuvariak Island	Hay 24	Аия. 22	09	45.5	e .	6.	Hest	East side Prudhoe Causeway
		May 24	Sept. 4	104	01	- .	-	West	North shore Narwhal Is
		May 24	July 24	29	12	? :	۶.	West	Mainland beach of east Inggy 1s. May
		May 24	July 24	. 29	12	?	۶.	Mest	Maintand Beach of east Foggy Is. Bay

DRIFTER SPEED CRRVARESON AND DATA - 1929

ļ									
	RELEASE	RECASE	RECOVERY UATE	UAYS ADICIT	DISTANCE (KILONETERS)	RATE (KIYIAY)	(CM/SEC)	DIRECTION	RI COVERY 1 (MAT 10)
		May 24	Aug. 27	96	46.5	rċ	بع	West	Hest dock, east side 1/2 between dockhead 12 8 13
	Island	Hay 24	Aug. 8	"	15	? .	2.	East	fast end Pole Is offshore beach
		Hay 24	Aug. B	"	13	.2	? .	East	East end Pole Is offshore beach
		May 24	Aun. 8	11	11.5	-	- .	East	Pole Island
		Nay 24	Aug. 8	11	11,5	-	- .	East	Pole Island
		Hay 24	Atig. 8	11	11.5	- .	-:	East	Pole Island
		flay 24	Aun. 8	"	11.5	1.	- .	East	Pole Island
		May 24	Aug. 8	11	11.5		-	East	Pole Island
		May 24	Aun. 8	11	11.5	۳.	- .	East	Pole Island
		Hay 24	Aug. 8	11	11.5	τ.	-	[ast	Pole Island
		Hay 24	Aug. 8	11	11.5	-		East	Pole Island
		Nay 24	Aug. 8	11	11.5	-	-	East	Pole Island
		Hay 24	Aug. 8	"	11.5	- .	- .	East	Pole Island
		May 24	. Aug. 8	"	11.5	₹.	~.	East	Pole Island

HRITHER SPEED COMPARISON AND DATA - 1979

RILLTAST.	RILEASE	RELEASE	RECOVERY	PAYS	DISTANCE (KILONETERS)	RATE (KH/DAY)	RATE (CH/SLC)	UIRECTION	RECOVERY 1 OCATION
21 55	12 miles north of Hgvarlak Island	Hay 24	July 20	58	47.5	æ.	6 .	Mes t	ARCO Causeway, east side, 300 m towards douklead 13 from dock-
		May 24	Á119. 6	75	20		€.	West	I ml. west of east dock of Prudhoe Nay on beach
		Hay 24	Aug. 27	96	49	æ.	9.	Vest	West side, east dock
		May 24	July 26	64		e.	6.	West	South of old east dock on shore
		Nay 24	Aug. 14	83	52	Ę.	e .	West	Natuland beach of east Foggy 1s. Bay
		Hay 24	July 26	. 64	21.5	Ē.	E.	West	West beach of Tigvariak Island
		Hay 24	Aug. 31	901	47.5	ĸ;	9 .	Vest	East shore Prudhoe Bay
SS 1.3	12.5 miles north of Tigvariak Island	Nay 24	Aug. 13	90	47.5	ø.	<i>t</i> .	Mest	148°30'30" 70°23'18"
		Itay 24	Aug. 6	75	8	Ξ.	7.3	West	Hilne Pt. Beach (off hul area)
		Nay 24	Aug. 18	1 0	80	6.	0.1	West	I km east of MAR cabins on beach east of E. Hilne Pt.
		Nay 24	Aug. 8	"	5	?	? :	East	Hid Pole Is. to west spit offshore beach

DRITTER STEED COMPARISOR AND DATA - 1979

RELIASE	RUTASI	RILLASE	RECOVERY DATE	DAYS	DISTANCE (KILONLIENS)	RATE (KM/DAY)	RATE (CH/SEC)	DIRECTION	RI COVI RY LOCALION
, 2 yi	10 Sm north Reinderr Island	July 12	Aut. 27	4	21	प	rċ.	West	On share, south of west dock
C 93	10 km north- west of Cross Island	July 12	Aug. 24	£	R2	6.1	2.2	West	North shore, flaxman Island
		July 12	Sopt. 2	53	. 82	5.	1.7	West	Invard slde, Flaxman Island
• 53	10 km north of Cross Island	July 12	Aug. 27	41	30	نم	r .	West .	On share, south of west dock
		July 12	Sept. 2	53	77.5	1.5	1.7	West	Scaward side, Flaxman Island
		July 12	Aug. 31	51	29.5	9.	۲.	West	West dock, east side of dockhead #3
		July 12	Sept. 13	¥.	29.5	ηċ	.و	West	Shore to right of west dock
s 93	5 bm north of Cross Island	July 12	Aug. 14	34	2	₹.	rċ	West	Horth side Reindeer Island
		July 12	Aug. 24	7	56	ń.	1.	West	Near center of Stump Island on east side

APPENDIX B 1980 DRIFTER SPEED COMPARISION AND DATA

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak Island

8P = 16 m = 8c mi = me	releases due north of Reechey Pointmetermile	orth of		- - -	The state of the s			CG H H	<pre>= releases by Coast Guard = kilometer = centimeter</pre>
RELEASE ORIFTER	# RELEASE LOCATION	RELEASE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATL (KH/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
1 48	0.5 mi true N of Beechey	Mar. 28	5 Aug.	131	23	71.	.20	East	1/3 way to W along Stump Lagoon
	Pt.	Mar. 28	9 Aug.	135	E.	.02	.02	East	2 km E of Beechey Pt., 100 meters inland on South shore of narrow lake 1.0 m above water line
		Mar. 28	9 Aug.	135	2	.00	.01	East	l km E of Beechey Pt. 10-15 m fn- land on ME shore of stream outlet
		Mar. 28	9 Aug.	135	2	.01	.01	East	1 km E of Beechey Pt. 10-15 m in- land on NE shore of stream outlet
BP 2	1.0 mi true N of Beechey Pt.	Mar. 28	5 Aug.	131	34	.25	62.	East	W end oceanside Aryo is.
		March 28	9 Aug.	43	e.	90.	.08	East	1.3 km E of Beechey Pt. on beach
		March 28	9 Aug.	135	3.5	.02	.03	East	1 km E of Beechey Pt. 10-15 m in- land on NE shore

	CG = releases by Coast Guard km = kilometer cm = centimeter	RECOVERY LOCATION	South shore of Kogru River SW of landing strip	North shore of Peninsula above Kogru River 3 mi E of Saktuina Pt.	North shore of Peninsula above Kogru River 3 mi E of Saktuina Pt.
		DIREC- TION	West	West	West
-1980 e north		RATE DIREC- (CM/SEC) TION	1.01	Ξ	:
AND DATA		RATE (KM/DAY)	1.01	.95	.95
DRIFTER SPEED COMPARISON AND DATA -1980 SS = Stafansson Sound- releases due north	or Hyvariak islamu	DISTANCE RATE (KM) (KM/DAY)	116	112.5	112.5
SPEED (fansson	5	DAYS	114	118	118
DRIFTER SS = Sta		RECOVERY DAYS DATE ADRIFT	July 19	July 23	July 23 118
	orth of	RELEASE DATE	Mar. 28	Mar. 28	Mar. 28
	<pre>BP = releases due north of Beechey Point m = meter mi = mile</pre>	RELEASE	1.5 mi true Mar. 20 N of Becchey Pt.		
	OP = relea Beech m = meter m1 = mile	RELEASE /	BP 3		

North of Garry Creek

West

96.

.83

96.5

July 21 116

Mar. 28

18 km South of Cape Halkett

West

96.

123

128

Aug. 2

Mar. 28

18 km South of Cape Halkett

West

= :

96.

123

128

Aug. 2

Mar. 28

DRIFTER SPEED COMPARISON AND DATA -1980 SS = Stafansson Sound- releases due north

releases by Coast Guard kilometer centimeter	RECOVERY LOCATION	South shore of Kogru River SW of landing strip	North shore of Peninsula above Kogru River 3 mi E of Saktuina Pt.	North shore of Peninsula above Kogru River 3 m1 E of Saktuina Pt.	North of Garry Creek	18 km South of Cape Halkett	18 km South of Cape Halkett
CG	DIREC- TION	West	West	West	West	West	West
	RATE (CM/SEC)	1.17	= .	Ξ	96*	1.1	1.1
sland	RATE (KM/DAY)	1.01	.95	. 95	.83	96.	96•
of Tigvariak Island	DISTANCE (KM)	116	112.5	112.5	96.5	123	123
of Ti	DAYS	114	118	118	116	128	128
	RECOVERY DATE	July 19	July 23	July 23	July 21	Aug. 2	Aug. 2
orth of	REL EASE Date	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28
= releases due north o Beechey Point = meter = mile	# RELEASE LOCATION	1.5 mi true N of Becchey Pt.					
86 = 1 = 8 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1	RELEASE ORIFTER	BP 3					

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tinvariak Island

<pre>= releases by Coast Guard = kilometers = centimeters</pre>	RECOVERY LOCATION	1.9 km E of Beechey Point on beach buried in 8 cm of	1 km E of Beechey Pt. 10-15 m inland on NE shore of stream outlet	N shore Peninsula above Kogru River 3 mi E of Saktuina Point	N shore Peninsula above Kogru River 3 mi E of Saktuina Point	N shore Peninsula above Kogru River 3 ml E of Saktuina Point.	18 km S of Cape Halkett	18 km S of Cape Halkett
	DIREC- TION	East	East	West	West	West	West	West
	RATE (CM/SEC)	.04	.03	1.17	1.17	1.17	=	
pue	RATE (KM/DAY)	.03	.02	1.01	1.01	1.01	56.	.95
of Tigvariak Island	DISTANCE (KM/DAY)	4.9	4	120	120	120	122.5	122.5
of Tig	DAYS	135	135	118	118	118	128	128
	RECOVERY DATE	Aug. 9	Aug. 9	Jul. 23	Jul. 23	Jul. 23	Aug. 2	Aug. 2
orth of	RELEASE DATE	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28
releases due north o Beechey Point meters mile	RELEASE	2.0 mi true N of Beechey Point (dry ice hole)						
BP = relea Beech m = meter mi = mile	RELEASE # ORIFTER	BP 4						

1980	north	
DRIFTER SPEED COMPARISON AND DATA - 19	= Stefansson Sound - releases due north	of Figvariak Island
≦	S	

	releases due north of Beechy Point meter mile	orth of		50	of Tigvarfak Island	land			<pre>= releases by Coast Guard = kilometer = centimeter</pre>
RELEASE DRIFTER	# RELEASE LOCATION	RELEASE DATE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
BP 4	2.0 ml true N of Beechey	Mar. 28	Aug. 23	149	5	.03	.03	East	Inside the V at the E of Cottle Island
	ice hole)	Mar. 28	Aug. 23	149	ĸ	.03	.03	East	Inside the V at the E of Cottle Island
		Mar. 28	Jul. 24	119	37	.31	.35	West	SE tip of Thetis Island, oceanside
BP 5	2.5 mi true N of Beechey	Mar. 28	Aug. 5	131	30	.22	.26	East	W. Dock, Prudhoe Bay
	; -	Mar. 28	Aug. 10	136	3.5	.02	.02	West	N side, Bodfish Island
		Mar. 28	Aug. 10	136	3.5	.02	.02	West	N side, Bodfish Island
		Mar. 28	Aug. 10	136	3.5	.02	.02	West	N side, Bodfish Island
		Mar. 28	Aug. 5	131	~	0	0	·East	Cottle Island - oceanside
		Mar. 28	Aug. 5	131	-	0	0	East	Cottle Island - oceanside
		Mar. 28	Aug. 5	131	2	70.	3 (0.	East	Cottle Island - oceanside
	_	Mar. 28	Aug. 5	131	E.	.02	.02	East	Cottle Island - oceanside

4 AND DATA - 1980	1 - releases due north	Island
DRIFTLE SPEED COMPARISON AND DATA -	SS = Stefansson Sound -	of Ilgvariak Island

releases by Coast Guard kilometer centimeter	RECOVERY LOCATION	Cottle Island - oceanside	Cottle Island - oceanside	Cottle Island - oceanside	Opposite tower on Cottle Island - oceanside	1/4 mi. W of tower on Cottle Island - oceanside	1/4 mi. W of tower on Cottle Island - oceanside	1/4 mi. W of tower on Cottle Island - oceanside	1/4 ml. W of tower on Cottle Island - oceanside	West end of Long Island - oceanside	West end of Long Island - oceanside
20 E E E E E E E E E E E E E E E E E E E	DIREC- TION	East	East	East	East	East	East	East	East	East	East
	RATE (CM/SEC)	.02	.02	.02	0	C	0	0	0	.05	.05
	RATE (KM/UAY)	.01	10.	.01	0	0	0	0	0	٠0٠	٠0٠
	DISTANCE (KM)	2.5	2.5	2.5	~ -	.75	.75	.75	.75	9	9
	DAYS AOR1FT	131	131	131	131	131	131	131	131	131	131
	RECOVERY DATE	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5
th of	RELEASE DATE	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28
releases due north of Becchey Point meter mile	RELEASE LOCATION	2.5 mi true N of Beechey	Point								
8P = release Becch m = meter mi = mile	RELEASE A DRIFTER	BP 5									

ORIFI SPEED COMPARISON AND DATA -1980 SS = Stafansson Sound - releases due north of Tigvariak Island

R

CG = releases by Coast Guard km = kilometer cm = centimeter	DIREC- RECOVERY TION LOCATION	East Midway along W half of Long Island - oceanside	East Midway along W half of Long Island - oceanside	East Midway along W half of Long Island - oceanside	East Midway along W half of Long Island - oceanside	East East end West half of Long Island - oceanside	West Pingok Island	West West end Pingok Lagoon	West 2 ml South of Atjuaru Point
	RATE C (CM/SEC)	.08 E	3 80.	3 80°	•08 E	.12	W 60.	. 13	.85 W
and	RATE (KM/DAY)	.07	.07	.00	.07	- :	.08	Ξ.	.74
of Tigvariak Island	DISTANCE (KM)	10	10	10	10	14	10.5	15	16
of Tig	DAYS	131	131	131	131	131	131	131	131
	RECOVERY DATE	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 5
orth of	RELEASE DATE	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28	Mar. 28
releases due north oBeechey Pointmetermile	RELEASE	2.5 mi true N of Beechey Point							
8p = rc 8e = 8e 8 = 8e	RELEASE A	BP 5							

DRI SS =	DRIFTER SPEED COMPARISON AND DATA -1980	SS = Stefausson Sound - releases due north	of Havariak Island
	DRIFTER	SS = Ste	

<pre>= releases by Coast Guard = kiloneter = centimeter</pre>	C- RECOVERY N LOCATION	1/2 mi West of East Dock	North side Bodfish Island	North side Cottle Island	North side Bodfish Island	North side Bodfish Island	1/4 ml West of tower on Cottle Island - oceanside	East end West half of Long Island - oceanside	Stump Island - oceanside	East end Long Island - oceanside	1.5 ml West of West Dock near Pt. McIntyre
CG CG	DIREC- TION	East	West	Eást	West	West	East	East	East	East	East
	RATE (CM/SEC)	.39	70°	-02	.03	.03	.00	.13	.24	.13	.26
	RATE (KM/DAY)	.33	.02	.02	.02	.02	10.	.12	.2	.12	.23
10165 VB1 104611 10	DISTANCE (KM)	42.5	e.	E	3.5	3.5	2	15.5	27	15.5	29.5
	DAYS	126	134	135	134	134	129	129	129	129	128
	RECOVERY Date	Aug. 2	Aug. 10	Aug. 11	Aug. 10	Aug. !0	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 4
th of	RELEASE DATE	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30
releases due north of Beechey Point meter mile	# RELEASE LOCATION	3.0 mi true N of Beechey	Point								
8P = re Be m = me	RELEASE DRIFTER	9 48									

DRIFTER SPEED COMPARISON AND DATA -1980 SS= Stefansson Sourd - releases due north of Tigvariak Island

releases by Coast Guard kilometer centimeter	RECOVERY LOCATION	On beach at Lonely, Alaska	North side, Bodfish Island	North side, Bodfish Island	4.5 ml West of Saktuina Point	East end West half of Long Island – oceanside	4 mi West of Saktuina Point	1.5 ml West of Saktuina Point	18 km South of Cape Halkett on beach	18 km South of Cape Halkett on beach
CG = km = cm =	DIREC- TION	West	West	West	West	East	West	West	West	West
	RATE (CM/SEC)	1.54	.03	.03	1.02	.14	66°	18.	1.12	1.12
	RATE (KM/DAY)	1.33	.00	20.	.88	.12	.85	.,	96•	96.
of Hyvafidk Istano	DISTANCE (KM)	158.5	3.5	3.5	114.5	15.8	110.5	90.5	122	122
6 - -	DAYS	119	134	134	129	129	129	129	126	126
	RECOVERY DATE	Jul. 26	Aug. 10	Aug. 10	Aug. 5	Aug. 5	7 Ynd	Aug. 5	Aug. 2	Aug. 2
th of	REL EASE DATE	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30
releases due north of Beechey Point meter mile	RELEASE LOCATION	3.5 mi true N of Becchey Point								
BP = relea Beech m = meter mi = mile	RELEASE #	BP 7 3.								

ORIFIER SPEED COMPARISON AND DATA - 1980 SS- Stefansson Sound - releases due north of Flovariak Island

NP = rele Beec	releases due north o Beechey Point	th of		of Hgv	of figvariak island	and .		1 = 93	CG = releases by Coast Guard
m = meter mi = mile	10 L							km = k	k Nometer centimeter
RELEASE DRIFTER	RELEASE LOCATION	RELEASE Date	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
8 8	4.0 mi true N of Beechey	Mar. 30	Aug. 5	129	8	.03	.03	East	Cottle Island - oceanside
		Mar. 30	Aug. 5	129	115	60.	1.03	West	4.5 ml West of Saktuina Point
		Mar. 30	Aug. 5	129	16	.12	۲.	East	West end East half of Long Island-oceanslue
		Mar. 30	, Aug. 5	129	6	90.	90.	West	E end of E Island between Pingok Is. & Cottle Is. Lagoon (channel) side
		Mar. 30	Aug. 5	129	6.	90.	90.	West	E end of E Island between Pingok Is. & Cottle Is. Lagoon (channel) side
		Mar. 30	Aug. 5	129	24	e	.21	West	E. end Spy Is oceanside
		Mar. 30	Анд. 5	129	15	=	.13	East	Long Island - oceanside
			Aug. 4	128	62	.22	92.	East	1.5 ml West of W. Dock near Pt. McIntyre
		Mar. 30	Aug. 2	126	122	96.	1.12	Vest	18 km South of Cape

DRIFTER SPEED COMPARISON AND DATA - 1980 SS= Stefansson Sound - releases due north of Ilqvariak Island

BP = relea Beech m = meter mi = mile	releases due north of Beechey Point meter mile	h of			of Tig	of Tigvariak Island	g uc		K	releases by Coast Guard kilometer centimeter
RELEASE #	RELEASE RI LOCATION	RELEASE	~	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
ВР 9	4.5 ml true N of Beechev	Mar.	30	Aug. 2	126	122	96.	1.12	West	18 km S of Cape Halkett on beach
	Point	Mar.	30	Aug. 2	126	122	96.	1.12	West	18 km S of Cape Halkett on beach
		Mar. 3	30	Aug. 2	126	122	96*	1.12	West	18 km S of Cape Halkett on beach
BP 10	5.0 ml true N of Beechev	Mar.	30	Aug. 5	129	110	.85	86.	West	4 mi West of Saktuina Point
	Point	Mar.	30	Aug. 5	136	122	.89	1.03	West	18 km S of Cape Halkett on beach
		Mar. 3	30	Aug. 5	136	122	.89	1.03	West	18 km S of Cape Halkett on beach
		Mar. 3	30	Aug. 5	136	122	.89	1.03	West	18 km S of Cape Halkett on beach
BP 11	5.5 ml true N of Reechey	Mar.	30	Aug. 19	9 143	107.5	.75	.87	West	Mouth of Kalikpik River
	Point	Mar.	30	Aug. 2	126	122	96*	1.12	West	18 km S of Cape Halkett on beach
		Mar. 3	30	Aug. 2	126	122	96.	1.12	West	18 km S of Cape Halkett on beach

		`		R 1 F		S	NNO DATA -	1980		
8P = rele Beecl m = meter mi = mile	releases due north of Reechey Point meter mile	th of		SS = Stel	Stefansson Sound of Tigvaria	1 - 1	releases due north Island	north	CG = 1	releases by Coast Guard kilometer centimeter
RELEASE DRIFTER	RELEASE LOCATION	RELEASE DATE	SE	RECOVERY DATE	r DAYS ADRIFT	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
BP 12	6.0 mi true N of Beechey	Mar.	30	Aug. 12	136	122	-89	1.03	West	18 km S of Cape Halkett on beach
	Point	Mar.	30	Aug. 19	143	122	-85	96.	West	18 km S of Cape Halkett on beach
		Mar.	30	Aug. 17	141	109	11.	-89	West	Mouth of Kalikpik River
		Mar.	30	Aug. 2	126	109	.86	1.00	West	Mouth of Kalikpik River
		Mar.	30	Aug. 4	128	251	1.96	2.26	West	Cooper Island 71°14' 155°40'
		Mar.	30	Jul. 27	151	37	.24	.28	West	East of Thetis Island – oceanside
BP 13	6.5 mi true N of Beechey Point	Mar.	30	Aug. 5	129	16	.75	.87	West	l mi West of Atigaru
BP 14	7.0 mi true	Mar. 30	30	Aug. 5	129	110	.85	86.	West	S Kogru
	N of Beechey Point	Mar.	30	Aug. 5	132	115	.87	1.00	West	4 mi West of Saktuina Point
		Mar.	30	Aug. 5	129	115	.89	1.03	West	4.5 mi West of Saktuina Point
		Mar.	30	Aug. 17	14	121	.85	66.	West	15 km S of Cape Halkett
		Mar.	30	Sep. 19	1/4	96	.55	.63	West	44 mi SE of Camp

1980	north	
4 AND DATA -	releases due north	Island
DRIFTER SPEED COMPARISON AND DATA	SS = Stefansson Sound - r	of Higvariak Island

BP = releament Recclus Recclus	releases due north of Reechy Point meter mile	th of		9- - -	or ligvariak istand		CG = r kn = k cm = c	releases b Guard Kilometer centimeter	releases by Coast Guard Kilometer centimeter
) ju	# RELEASE LOCATION	REL EASE DATE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
BP 15	7.5 mi true N of Beechey	Mar. 30	Aug. 2	126	142	1.12	1.3	West	152°5u' 70°55' N shore of 1sland
	Point	Mar. 30	Aug. 12	136	122	-89	1.03	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 3	121	122	96.	1.1	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 2	921	122	96.	1.12	West	18 km S of Cape Halkett on beach
91 40	8.0 mi true N of Beechey	Mar. 30	Aug. 5	129	115	68.	1.03	West	4.5 mi W of Saktuina Point
	Point	Mar. 30	Aug. 5	129	110	.85	86.	West	1.5 mf W of Saktuina Point
		Mar. 30	Aug. 5	129	109	.84	16.	West	S Kogru Entrance
		Mar. 30	Aug. 5	129	113.5	.87	1.01	West	4 mi W of Saktuina Point
		Mar. 30	Jul. 23	911	113.5	16.	1.13	West	4 ml V of Saktuina Point
		Mar. 30	Aug. 18	142	121	.85	.98	West	15 km S of Cape Halkett
		Mar. 30	Aug. 18	142	121	.85	.98	West	15 km S of Cape Halkett
		Mar. 30	Aug. 2	921	121	96.	1.1	West	15 km S of Cape
		Mar. 30	Aug. 5	129	152	1.94	2.25	Hest	Cooper Island

•	•	•	DRH II.R S	TLR SPITD COMPARI Stefansson Sound	د ، ۱۷	N AND DATA - releases due	1980 north		
	releases due north of Beechey Point meter mile	rth of		5	JV41 14K 13		•	km se	releases by Coast Guard kilometer centimeter
	E W RELEASE R LOCATION	RELEASE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
da	8.5 mi true N of Deechey	Mar. 30	Aug. 4	128	156.5	1.22	1.41	West	Lonely, Alaska, beach
	Point	Mar. 30	Aug. 12	136	123.5	6.	1.05	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 12	136	123.5	6.	1.05	West	18 km S of Cape Halkett on beach
		Mar.30	Aug. 12	136	123.5	6.	1.05	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 17	141	121.5	98.	66.	West	15 km S of Cape Halkett
		Mar. 30	Aug. 2	126	123.5	86°	1.13	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 2	126	123.5	86.	1.13	West	18 km S of Cape Halkett on beach
		Mar. 30	Aug. 2	126	123.5	86.	1.13	West	18 km S of Cape Halkett on beacg
		Mar. 30	Sep. 4	691	37.5	.23	.27	West	South side Theti Island near hut
BP 18	9.0 ml true N of Beechey	Mar. 30	Aug. 5	129	107	.82	96.	West	N Kogru South of Saktuina Point
	Point	Mar. 30	Aug. 5	129	114	.88	1.02	West	4 ml West of Saktulna Point
		Mar. 30	Aug. 5	129	115	.89	1.03	West	4.5 mi West of Saktuina Point

DRIFILE SPEED COMPARISON AND DATA - 1980 SS= Stefansson Sound - releases due north of Tigvariak Island

	CG = releases by Coast Guard km = kllometer cm = centimeter	RECOVERY	15 km South of Cape Halkett	18 km South of Cape Halkett on beach	18 km South of Cape Halkett on beach	18 km South of Cape Halkett on beach	Lee side of Cross Island	18 km South of Cape Halkett on beach	West end of Thetis Is. oceanside
	# # # E S S S S S S S S S S S S S S S S	DJREC- TION	West	West	West	West	East	West	West
		RATE (CM/SEC)	66*	1.05	1.13	1.13	.33	-3	9.
;		RATE (KM/DAY)	.85	6.	86.	86.	.28	1.12	.52
		DISTANCE (KM)	121.5	123.5	123.5	123.5	48.5	153	69
		DAYS AORIFT	142	136	126	126	168	136	131
		RECOVERY DATE	Aug. 18	Aug. 12	Aug. 2	Aug. 2	Sep. 13	Aug. 12	Aug. 7
	th of	RELEASE Date	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 30
	= releases due north Beechey Point = meter = mile	RELEASE	9.0 mi true Mai N of Beechey Point					24 ml north of Long Is.	28 mi. north Mar of Long Is.
	BP = relea Beech m = meter mi = mile	RELEASE A	BP 18					8P 19	BP 20 5

3	<u>Ĕ</u>	DRIFTER SPLED COMPARISON AND DATA -	COMPAR	SON	VO ONV	- ≤:	1980
- SS	Ste	SS = Stefansson Sound	isson Sound - releas	10	 releases due north 	JIE	north

86 = 1.0 Be = 1.0 m = m0	releases due north of Beechey Point meter mile	th of		<u>5</u> 11	of Tigvariak Island	pae		# # C # C # C # C # C # C # C # C # C #	releases by Coast Guard kilometer centimeter
RLLLASE	# RELEASE LOCATION	RELEASE OATE	RECOVERY DATE	DAYS	DISTANCE (KM) (RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
SS 1	.5 mi true N of Tigvariak	Mar. 31	Aug. 12	135	16	=	.13	West	Mouth of Kadleroshilik River
	Island	Mar. 31	Aug. 5	128	1.5	.01	.01	West	N shore of Island W of Tigvariak Is.
		Mar. 31	Sep. 6	160	160	1.0	1.15	East	E of Beaufort Lagoon, 141°32' 69°45'
55 2	1.0 mi true N of Tigvariak Island	Mar. 31		None re	None recovered				
55 3	1.5 mi true N of Tigvariak Island	Mar. 31	Jul. 14	106	103.5	16.	1.13	West	Beach of Oliktok Pt approx. 70°30' 149°50'
		Mar. 31	Aug. 19	142	185	1. 3	1.5	West	Mouth of Kalikpik River
		Mar. 31	Aug. 12	135	205	1.51	1.75	West	18 km S of Cape Halkett on beach
55.4	2.0 ml true	Mar. 31	Aug. 4	121	23	bp.	.51	West	1.5 mf W of W Dock
	n of Ingvariak Island	Mar. 31	Aug. 8	131	9/	.58	.67	West	1.5 ml S of Beechey Point
58 5	2.5 mi true N of Iigvariak Island	Mar. 31	Aug. 12	135	204.5	1.51	1.75	West	1.8 km S of Cape Halkett on beach

DRIFIER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak island

CG ≈ releases by Coast Guard km = kilometer cm = centimeter	RECOVERY LOCATION	4 mi W of Saktuina Point	4.5 mi W of Saktuina Point	l mi W of Saktuina Point	N Kogru, S of Saktuina Point	18 km S of Cape Halkett on beach	18 km S of Cape Halkett on beach
CG = r Km = k Cm = c	DIREC- TION	West	West	West	West	West	West
	RATE DIREC- (CM/SEC) TION	1.75	1.76	1.72	1.73	1.76	1.76
	ISTANCE RATE (KM) (KM/DAY)	1.51	1.52	1.48	5.	1.52	1.52
	DISTANCE (KM)	194.5	195.5	190.5	192	902	506
	DAYS	128	128	128	128	135	135
	RECOVERY DATE 1	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 12	Aug. 12
rth of	RELEASE DATE	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31
BP = releases due north of Beechey Point m = meter mi = mile	RELEASE # RELEASE DRIFTER LOCATION	3.0 mi true N of Tigvariak	ls land				
BP = releas Beeche m = meter mi = mile	RELEASE # DRIFTER	SS 6 3.	<u></u>				

	_	
8	エ	
1980	SS = Stefansson Sound - releases due north	
DRIFTER SPEED COMPARISON AND DATA - 1	ບ	
<	₹	
Y	Ş	
=	S	1
3	င္ခ	_
_	ا.	_
É	-	of Tinvariak Island
=	_,	7
Š	Ĕ	101
E	Sol	É
ರ	=	-
=	SO	J
=	IS	Ī
S	ت	
Ξ	te	
i.	S	
=	H	
=	SS	

NP = releas Reche m = meter mi = mile	releasès due north of Beechey Point meter mile	rth of							releases by Coast Guard kilometer centimeter
RLLEASE 1	RELEASE	RELEASE DATE	RECOVERY	DAYS	DISTANCE (KM)	RATE (KH/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY
1 88 1	3.5 mi true N of Tigvariak	Mar. 31 lak	Aug. 1	12 135	5(16	1.52	1.76	West	18 km S of Cape Halkett on beach
	Island	Nar. 31	Aug. 17	7 140	204	1.45	1.68	West	15 km S of Cape Halkett on beach
		Mar. 31	Aug. 2	125	506	1.64	1.9	West	18 km S of Cape Halkett on beach
		Mar. 31	Aug. 2	125	506	1.64	1.9	Vest	18 km S of Cape Halkett on beach
		Mar. 31	Aug. 2	125	506	1.64	1.9	West	18 km S of Cape Halkett on beach
		Mar. 31	Aug. 2	125	206	1.64	1.9	West	10 km S of Cape Halkett on heach
		Mar. 31	Aug. 2	125	506	1.64	1.9	Hest	18 km S of Cape Halkett on beach
SS 8	4.0 mi true N of Ilgvariak	Mar. 31 Iak	Aug. 12	2 135	506	1.52	1.76	West	IB km S of Cape Halkett on beach
	Island	Mar. 31	Aug. 12	2 135	506	1.52	1.76	West	IB km S of Cape Halkett on beach
		Mar. 31	Aug. 12	2 135	506	1.52	1.76	West	IB km S of Cape Halkett on beach
		Mar. 31	Sep. 18	3/11/8	325	1.18	2.18	West	35 mi S of Barrow on beach
		Mar. 31	Aug. 4	121	337	2.65	3.07	West	Cooper Island

releases by Coast Guard kilometer centimeter	- RECOVERY LOCATION	Island N of Tigvariak Is. Oceanside	4.5 mi West of Saktuina Pt.	2 mi East of Kavearak Pt.	1.5 mi East of Oliktok Pt.	15 km South of Cape Halkett	18 km South of Cape Halkett on beach	Lee side of Cross Island	Cooper 1s. 71° 14' 156° 15'	18 km South of Cape Halkett on heach	18 km South of Cape Halkett on beach
CG = re Km = kt	DIREC	West	West	West	West	West	West	West	West	West	West
1980 north	RATE (CM/SEC)	0.5	1.76	.,	1.09	1.66	1.89	•25	2.79	1.75	1.75
- 9	RATE (KM/DAY)	0.5	1.52	.61	.94	1.43	1.63	.21	2.41	1.51	1.51
ED COMPARISON AND D. son Sound - release of Tigvariak Island	DISTANCE (KM)	5.0	. 561	80	101	203	205	36.5	336	502	205
TER SPEED COMPARI Stefansson Sound of Tigvari	DAYS AURIFT	128	128	131	107	141	125	167	139	135	135
DRIFTER SPEED COMPARISON AND DATA SS = Stefansson Sound - releases d of Tigvariak Island	RECOVERY DATE	Aug. 5	Aug. 5	Aug. 8	Jul. 15	Aug. 18	Aug. 2	Sept.13	Aug. 16	Aug. 12	Aug. 12
	RELEASE DATE	Mar. 31 Iak	Mar. 31 Iak	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31 ak	Mar. 31
releases due north of Beechey Point meter mile	RELEASE LOCATION	4.5 mi true N of Tigvariak Island	5.0 mi true N of Tigvariak	Island						5.5 mi true N of Tigvariak Island	
8P = relead Becch m = meter mi = mile	RELEASE # DRIFTER	88 9	88 10							SS 11 85	

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak Island

	releases due north of Beechey Point meter mile	orth of						CG = 1	releases by Coast Guard kllometer centimer
RELCASE DRIFTER	E # RELEASE R LOCATION	RCLEASE DATE	RECOVERY Date	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
21 55	6.0 mi true M N of Tigvariak Island	: Mar. 31 iak	Aug. 4	127	235	1.85	2.14	West	Lonely, Ak. on beach
		Mar. 31	Aug. 5	128	191	1.49	1.72	West	N. Kogru, West facing entrance
		Mar. 3]	Aug. 12	135		1.52	1.76	West	18 km south of Cape Halkett on beach
		Mar. 31	Aug. 2	125	206	1.64	1.9	West	18 km south of Cape Halkett on beach
SS 13	6.5 mi true M N of Tigvariak Island	Mar. 31 iak	Aug. 10	113	82.5	.62	.71	West	North side, Bodfish Island
		Mar. 31	Aug. 11	134	74.5	.55	.64	West	North side, Cottle Island
		Mar. 31	Aug. 5	128	93	.72	.84	West 1	Pingok Island. oceanside
		Mar. 31	Aug. 5	128	74	.57	99•	West (Cottle Island Oceanside
	٠	Mar. 31	Aug. 5	128	197	1.53	1.78	West A	4 mi West of Saktuina Pt.

DRIFTER SPEID COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tiqvariak Island

<pre>BP = releases due north of Becchey Point m = met3r mi = mile</pre>	orth of		of Hgva	of Hgvarlak Island	Du			releases by Coast Guard kilometer centimeter
RELEASE # RELEASE DRIFTER LOCATION	RELEASE DATE	RECOVERY DATE	DAYS ADRIFT	DISTANCE (KM) (E RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
SS 13 (Continued)	Mar. 31	Aug. 5	128	198	1.54	1.79	West (4.5 mi West of Saktuina Pt.
	Mar. 31	Aug. 5	128	53.5	£.	.48	West S	Stump Island - oceanslde
	Mar. 31	Aug. 5	128	105.5	-82	.95	West S	Spy Island - oceanside
	Mar. 31	Aug. 8	131	81.5	79.	.72	West E	East SE of Kavearak Pt.
	Mar. 31	Aug. 12	135	205	1.51	1.75 h	West C. C. b	18 km South of Cape Halkett on beach
	Mar. 31	Aug. 2	125		1.63	J.89 W	West 18	18 km South of Cape Halkett on beach

DRIFTER SPEED COMPARESON AND DATA - 1980 SS = Stefansson Sound - releases due north of Husariak Island

HP = relear Beech m = meter mf = mile	releases due north Beechey Point meter mile	th of		of Flgv	of Hgvartak Isjand	5	<i>- 2</i> 0	CG = releas Guard km = kilom cm = centin	releases by Coast Guard kilometer centimeter
RULTASI. 1	RELEASE LOCATION	RELEASE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
55 14	7.0 true N of Hgvariak	Mar. 31	Aug. 10	133	100	9.		West	North side of Bodfish Island
	Island	Mar. 31	Aug. 5	128	196.5	1.53	1.77	West	4 mi. West of Saktunia Pt.
		Mar. 31	Aug. 5	128	196.5	1.53	1.11	Vest	1 ml. Hest of Saktunia Pt.
		Mar. 31	Aug. 5	128	196.5	1.53	1.77	West	4 mi. West of Saktunia Pt.
		Mar. 31	Aug. 5	128	58.5	.45	25.	Vest	Egg Island - oceanside
		Mar. 31	Aug. 5	120	1	.32	.37	Vest	West end of Argo Is oceanside
	•	Mar. 31	Aug. 5	128	89	.53	19.	West	West end of Long Is oceanside
		Mar. 31	Aug. 5	120	89	.53	19.	West	West end of Long Is oceanside
		Mar. 31	Aug. 5	128	99	.53	19.	West	West end of Long Is oceanside
		Mar. 31	Aug. 5	128	20	.39	.45	Hest	East end of Stump Is oceans
		Mar. 31	Aug. 8	128	80.5	19.	11.	West	East SE of Kavearak Pt.

- 1980	e north	
DRIFTER SPLED COMPARISONS AND DATA -	SS = Stefansson Sound - releases due north	of Tiovariak Island
DRIFIER	SS = Ste	

<pre>BP = releases due north of</pre>						CG = r	releases by Coast Guard Kilometer centimeter
RELEASE # RELEASE RELEASE DRIFTER LOCATION DATE	RECOVERY DATE	DAYS Adrif f	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
SS 15 7.5 mi.true Mar. 31 N. of Tigvariak Island	Aug. 3	126	48	.38	٠44	West	W. Dock exten- sion - Prudhoe Bay
Mar. 31	Aug. 5	128	19	74.	.55	West	East end of Long 1s oceanside
Mar. 31	Aug. 4	121	53	₽.	.48	West	1.5 mi. West of W. Dock in Prudhoe Bay nr. Pt. McIntyre
Mar. 31	Aug. 12	135	204.5	1.51	1.75	West	18 km South of Cape Halkett on beach
SS 16 8.0 mi true Mar. 31 N. of Tigvariak Island	Aug. 5	128	22.7	.11	.2	East	Mid Mikkelson Bay
	Aug. 9	132	14	.56	. 64	West	SE of Beechy Pt
	Sep. 10	164	, 00	.63	.73	West.	Highest crest of Spy Island (deposited during 8/29 storm
	Aug. 17	140	58	4.	.47	East	2.5 km East of Brownlow Pt. on Spit

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Ifgvariak Island

CG = releases by Coast Guard km = kilometer cm = centimeter	- RECOVERY LOCATION	4 mi West of Saktuina Pt.	West of W. half of Long Island - oceanside	Egg Island Chan- nel Is. oceanside	N. Tigvariak Is. near begining of Spit	15 km S of Cape Halkett	Middle occanside of Spit Island east of Brownlow Point.
# # EC	DIREC- TION	West	West	West	East	West	East
	RATE (CM/SEC)	1.75	79.	.51	.12	1.65	.51
	RATE (KM/DAY)	1.51	.53	44.	~	1.42	٠ ١
	DISTANCE (KM)	194.5	69	23	14	200	19
	DAYS ADRIFT	128	128	128	128	140	136
	RECOVERY DATE	Aug. 5	Aug. 5	Aug. 5	Aug. 5	Aug. 17	Aug. 13
th of	RELEASE DATE	Mar. 31 ik	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31
<pre>BP = releases due north of Beechey Point m = meter mi = mile</pre>	RELEASE # RELEASE DRIFTER LOCATION	SS 17 8.5 mi true N of Tigvariak Island					

BP = re Bc Bc Bi = BC	releases due north of Beechey Point meter mile	h of					•	CG = re Cm = kt	releases by Coast Guard kilometer centimeter
RELEASE	# RELEASE LOCATION	RELEASE DATE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY LOCATION
55 18	9.0 mi true N of Tigvariak	Mar. 31	Aug. 5	128	8	90°	.07	East	Stockton Island - oceanside
	lsland	Mar. 31	Aug. 5	128	99	.43	ર.	West	East end of Stump -Oceanside
		Mar. 31	Aug. 5	128	28	.21	.25	West	Sagvanirktok River delta
		Mar. 31	Aug. 4	127	25	₹.	.47	West	1.5 m/ West of W. Dock (near Pt. McIntyre)
SS 19	9.5 mi true N of Tigvariak Island	Mar. 31	Aug. 5	128	78	9.	.,	West	E. island be- tween Cottle Is. and Pingok Is. Lagoonside
		Mar. 31	Aug. 5	128	49.5	• 38	.44	West	East end of Stump is. ocean- side
		Mar. 31	Aug. 5	128	89	.53	.61	West	West end W. half of Long Island - oceanside
		Mar. 31	Aug. 5	128	82	.64	.74	West	On East channel of Pingok Is.
		C	Aսց. 5	128	74.5	.58	.67	West	West end of Cottle Island - oceanside
		Mar. 31	Aug. 5	128	28.5	.22	.25	West	Sagvanirktok p

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak Island

releases by Coast Guard kilometer centimeter	RECOVERY LOCATION	1.5 mi West of W. Dock (near Pt. McIntyre)	North side of Bodfish Island	North side of Cottle Island	North side of Bodfish Island	North side of Bodfish Island	Oceanside of Spit West of Brownlow Pt.	East of Thetts Island cabin oceanside
CG # 8	DIREC- TION	West	West	West	West	West	East	West
	RATE (CM/SEC)	.94°	.68	.64	89.	89.	ઙ	=
	RATE (KM/DAY)	4.	.59	.55	.59	.59	.43	\$6.
	DISTANCE (KM)	51.5	78.5	74.5	78.5	78.5	99	116.5
	DAYS	127	133	134	133	133	129	122
	RELEASE RECOVERY DATE DATE	Aug. 4	Aug. 10	Aug. 11	Aug. 10	Aug. 10	Aug. 6	Jul. 30
th of	RELEASE DATE	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31	Mar. 31
releases due north of Beechey Point meter mile	RELEASE	9.5 mi true N of Tigvariak Island						
8P = relea Bech m = meter mi = mle	RELEASE /	SS 19						

1980	north	
- ≤	due	
M	releases due	7
ON/	eJea	clan
1 SON	i	٠,
DRIFTER SPEED COMPARISON AND DATA	Stefansson Sound	harist letanstate letand
00 0	S II	1
SPEEI	311550	4
IER :	Stefa	
RIF	H	
_	SS	

_	undru : kilometer : centimeter	RECOVERY LOCATION	Sagvanirktok River deita	North shore of Island west of Tigvariak Island	West end of Stockton Island oceanside	Pt. McIntyre	SE Beechey Pt.	East end of Thetis Island cabin - oceanside	2.5 km East of Brownlow Point
= 90	km cm ⊨	DIREC- TION	West	West	East	West	West	West	East
		RATE (CM/SEC)	.21	.13	90.	.53	.64	1.14	.52
and		RATE (XM/DAY)	18	Ē.	.00	.45	.55	96.	.45
of Tigvariak Island		DISTANCE (KM)	23.5	15	6	51	73.5	115.5	29
of 11g		DAYS ADR 1 F T	128	128	128	=	132	1117	136
		RECOVERY DATE	Aug. 5	Aug. 5	Aug. 5	Jul. 19	Aug. 9	Jul. 25	Aug. 13
		i	31	31	31	31	31	31	31
1 of		RELEASE Date	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.
8P = releases due north of	Beechey Point m = meter mí = mile	RELEASE # RELEASE R DRIFTER LOCATION	SS 20 10.0 mi true N of Tigvariak Island						

DRIFIER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak Island

UP = relea Beech m = meter mi = mile	releases due north of Beechey Point meter mile	th of						CG = r km = k cm = c	releases by Coast Guard kilometer centimeter
RELEASE /	RELEASE	RELEASE DATE	RECOVERY DATE	DAYS Adrift	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY
1 90	5 mt N of Reindeer Is. in open	Jul. 7	Aug. 10	25	33	1.31	1.52	West	North side Bodfish Island
	water	Jul. 7	Aug. 10	52	33	1.31	1.52	West	North side Bodfish Island
		Jul. 7	Aug. 10	52	33	1.31	1.52	West	North side Bodfish Island
		Jul. 1	Aug. 11	92	31	1.19	1.37	West	North side Cottle Island
		Jul. 7	Aug. 5	20	38	1.89	2.19	West	East end Pingok Is., oceanside
		Jul. 7	Aug. 5	50	47.5	2.37	2.74	West	East end Leavitt Island
		Jul. 7	Aug. 5	20	31	1.54	1.79	West	Cottle Island - oceanside
		Jul. 7	Aug. 5	20	19	.94	1.09	West	East end West half Long Island, oceanside
		Jul. 7	Aug. 5	20	38	1.89	2.19	West	East end Pingok Is oceanside
		Jul. 7	Aug. 5	20	33.5	1.67	1.93	West	Cottle Island -

1980	due north	
ORIFIER SPEED COMPARISON AND DATA -	SS = Stefansson Sound - releases due	

BP = releas Becche m = meter mi = mile	releases due north of Beechey Point meter mile	rth of		16	of Tigvariak Island	pue		CG = re] Gu km = k+1 cm = cen	releases by Coast Guard kilometer centimeter
RELEASE DRIFTER	M RELEASE LOCATION	RELEASE DATE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVERY
CG 1	5 mi N of Reindeer Isa	Jul 7	Aug. 4	19	21		1.27	West	1.5 mi West of West dock
	water	Jul. 7	Aug. 5	20	120.5	6.02	6.97	West	Mouth of Salt Lake
		Jul. 7	Aug. 17	32	152	4.75	5.49	West	15 km South of Cape Halkett
		Jul. 7	Aug. 2	11	154	9.05	10.48	West	18 km South of Cape Halkett on beach
	٠	Jul. 7	Aug. 25	40	18.5	.46	.53	West	West Dock - Prudhoe Bay
		Jul. 7	Aug. 29	14	99	4.71	5.45	West	East end of Thetis Island - oceanside
		Jul. 7	Aug. 29	7	99	4.71	5.45	West	East end of Thetis Island - oceanside
		Jul. 1	Aug. 9	24	66.5	2.11	3.2	West	Thetis Island
		Jul. 7	Aug. 10	52	33	1.31	1.52	West	Bodflsh Island - northside

1980	north	
DRIFTER SPEED COMPARISON AND DATA -	Sound - releases due north	Lucial defactor le
DRIFTER SPEED (SS = Stefansson Sound	11 90

BP = relea Beech m = meter mi = mile	releases due north of Beechey Point meter mile	rth of		of Tig	Tigvariak is	Island		CG = CM	releases by Coast Guard kilometer centimeter
RILEASI. DRIFTER	# RELEASE LOCATION	RELEASE DATE	RECOVERY DATE	DAYS	DISTANCE (KM)	RATE (KM/DAY)	RATE (CM/SEC)	DIREC- TION	RECOVER LOCATION
1 9)	5 mi N of Reindeer Is. in	Jul. 7	Aug. 10	52	33	1.31	1.52	West	Bodfish Island - northside
	open water	Jul. 7	Aug. 10	52	33	1.31	1.52	West	Bodfish Island - northside
		Jul. 7	Aug. 11	56	31	1.19	1.37	West	Cottle Island - northside
2 93	10 mi N of Reindeer Is in	Jul. 7	Aug. 5	20	32	1.59	1.85	West	Cottle Island - oceanside
	open water	Jul. 7	Aug. 5	20	36.5	1.82	2.11	West	West end Bertoncini Is. oceanside
		Jul. 7	Aug. 5	50	23.5	1.17	1.35	West	East end West half of Long Is oceanside
		Jul. 7	Aug. 5	20	23.5	1.17	1.35	West	East end West half of Long Is oceanside
		Jul. 7	Aug. 5	20	39	1.94	2.25	West	End end of Pingtok Is oceanside
		Jul. 1	Aug. 5	50	30.5	1.52	1.76	West	Cottle Island
		Jul. 1	Aug. 5	50	38	1.89	2.19	East	Sagvanirktok River

DRIFTER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tlovariak Island

CG = releases by Coast Guard km = kllometer	cent imeter	RECOVERY LOCATION	Half up East side of West Dock	1.5 mi West of West Dock	1.5 mi West of West Dock	18 km South of Cape Halkett on beach	East end Thetis, oceanside	Highest crest of Spy Is. (deposit ed during 8/29 storm)
CG = re G km = k1	= E0	DIREC- TION	West	West	West	West	West	West
		RATE (CM/SEC)	6.13	1.73	1.73	10.99	6.26	1.19
ᅙ		RATE (KM/DAY)	5.29	1.5	1.5	9.5	5.41	1.03
of Tigvariak Island		DISTANCE (KM)	26.5	28.5	28.5	152	65	58
of Tigve		DAYS Adrift	5	19	19	16	12	99
		RECOVERY DATE	Jul. 20	Aug. 4	Aug. 4	Aug. 1	Jul. 27	Sep. 10
<pre>= releases due north of Becchey Point = meter = mile</pre>		RELEASE Date	Jul. 7	Jul. 7	Jul. 7	Jul. 7	Jul. 7	Jul. 7
	RELEASE LOCATION	10 mi N of Reindeer Is. in open	water					
BP = relea Becch m = meter	mi = mile	RELEASE /	7 90					

DRIFIER SPEED COMPARISON AND DATA - 1980 SS = Stefansson Sound - releases due north of Tigvariak Island

CG = releases by Coast Guard km = kilometer cm = centimeter	DIREC- RECOVERY TION LOCATION	Shoreline, Komokuk Beach, Yukon (Dewline Station)	Beach on Tagoon side of Spit at West end of Pingok Island	Beach at Camp Lonely, 153° 10' West 70° 55' North
CG = releases b Guard km = kllometer cm = centimeter	DIREC- TION	East	West	West
CG	RATE (CM/SEC)	4.35	1.5	8.26
	RATE (KM/DAY)	3.76	1.3	7.13
	DISTANCE (KM)	207	56	178.5
	DAYS Adrift	55	43	52
	ERY	30	28	10
	RECOVERY DATE	Aug. 30	Aug. 28	Aug. 10
th of	RELEASE DATE	Jul. 7	Jul. 7	Jul. 7
<pre>BP = releases due north of Beechey Point m = meter mi = mile</pre>	RELEASE LOCATION	15 mi N of Reindeer 1s. in open water	20 mi N of Reindeer Is. in open water	25 mi N of Reindeer Is. in open water
UP = relea Beech m = meter mi = mile	RELEASE # DRIFTER	C 33	6 60	9 90

